TURTON SCHOOL YEAR 10 PE KNOWLEDGE ORGANISER – TOPIC 1.4.1/2/3/4/5 : SHORT/LONG TERM EFFECTS OF EXERCISE

Key Terms

Stroke Volume- Volume of blood pumped by heart per beat

Cardiac Output- Volume of blood pumped by the hear each minute

Tidal Volume – Volume of air inhaled per breath at rest

Vital Capacity - The greatest volume of air that can be expelled from the lungs after taking the deepest possible breath.

Capillarisation- process where new capillaries are formed. Takes place at the alveoli or skeletal muscle and increases oxygen transportation.

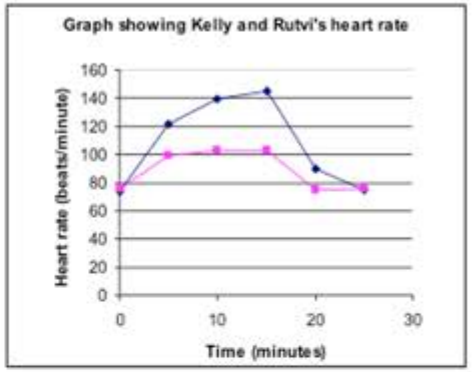
Short Term Effects - Immediately as you begin exercising!

Long Term Effects- Adaptations to the body after sustained consistent exercise

You should also be able to:

- Interpret graphical representations of heart rate, stroke volume and cardiac output values at rest and during exercise.
- TOP TIP! - Look at the differences in the numbers between resting & exercise

REMEMBER!
Cardiac Output (CO) = Heart Rate (HR) x Stroke Volume (SV)



What are the short term effects of exercise…?

Body System	Short term effects of exercise
Cardiovascular system	Increase in stroke volume (SV); increase in heart rate (HR); increase in cardiac output (Q); increase in blood pressure (BP); redistribution of blood flow
Respiratory system	Increase in breathing rate (BR); increase in tidal volume (TV); increase in minute ventilation (VE)
Cardio- respiratory system	Increase in oxygen uptake and transport to the working muscles Increase in carbon dioxide (Co2) removal
Energy system	Increase in lactic acid (lactate) production
Muscular system	Increase in temperature of muscles; increased pliability (elasticity); muscle fatigue

What are the long term effects of exercise then…?

Body System	Long term effects of exercise	Type of Training
Cardiovascular system	Cardiac hypertrophy; increased stroke volume (SV) at rest and during exercise; decrease in resting heart rate (HR); increase in cardiac output (Q); capillarisation at the lungs and muscles; increase in number of red blood cells	Aerobic
Respiratory system	Increased vital capacity; increase in minute ventilation (VE); increase in tidal volume (TV); decrease in breathing rate (BR); increased number of functioning alveoli; increased strength of the respiratory muscles (internal and external intercostals and diaphragm)	Aerobic
Energy system	Increased production of energy from the aerobic energy system; increased tolerance to lactic acid	Aerobic; Anaerobic
Muscular system	Muscle hypertrophy; increased strength of tendons; increased strength of ligaments	Resistance
Skeletal system	Increase in bone density	Resistance